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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,965	12/02/2003	Kenji Asakura	10873.1349US01	4361
23552	7590	10/13/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			PRUCHNIC, STANLEY J	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,965

Applicant(s)

ASAKURA ET AL.

Examiner

Stanley J. Pruchnic, Jr.

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/20/04(1/15/04) Rcvd (MARE) 15 sheet
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The references listed in the information disclosure statement (IDS) or PTO-1449 submitted by Applicant on 15 January 2004 (received 20 January 2004) are acknowledged. The cited references have been considered as indicated by the examiner's initials next to each reference considered.

However the foreign patent(s) and/or document(s) cited by applicant are considered only to the extent they could be understood from the abstract and drawings and Applicant's explanation of relevance in the Specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by KAMIYAMA *et al.* (U. S. Patent No. 6367972 B1, hereinafter **KAMIYAMA**).

KAMIYAMA discloses a temperature determining device (20) as claimed by Applicant in **Claim 1**, comprising:

a temperature detecting unit (infrared ray detecting element 25; Col. 4, Lines 65-67) that detects a temperature of a determination object member (heating/fixing roller 12; Figs. 2, 3 and 9) based on an intensity of infrared rays from the object member;

a unit for determining a temperature for correction that determines a temperature of an opposing member (holder 21; Fig. 2; Col. 6, Lines 10-12) opposed to the object member (12) or a temperature of a member whose temperature changes in correlation to a change in the temperature of the opposing member; and

a calculating unit (Detector Circuit "D"; Col. 6, Lines 57ff) that corrects the detected temperature obtained by the temperature detecting unit using the temperature as the temperature for correction obtained by the unit for determining a temperature for correction.

5. Claims 1-7, 9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by GILLEN *et al.* (U. S. Patent No. 5,999,768 A, hereinafter **GILLEN**).

Gillen discloses a temperature determining device (10) as claimed by Applicant in **Claim 1**, and an image forming apparatus as claimed by Applicant in **Claim 6**, the image forming apparatus comprising a fixing unit (fusing drum 96) that allows a toner image transferred on a transferring material to be fixed on the transferring material by heating the toner image under pressure (pressure drum 94), wherein the fixing unit comprises:

a fixing member (drum 96) that is brought into contact with the transferring material (media or substrate) so as to heat the transferring material;

a heating source (Col. 9, Lines 15-17) that heats the fixing member directly or indirectly;

a temperature detecting unit (10) that detects a surface temperature of the fixing member based on an intensity of infrared rays from the fixing member, which is a

temperature determining device (10) as claimed by Applicant in Claims 1 and 6, comprising:

a temperature detecting unit (infrared ray detecting thermopile 12; Col. 4, Lines 56-64) that detects a temperature of a determination object member (target, e.g., fusing drum 96 or image drum 98; Fig. 5) based on an intensity of infrared rays from the object member;

a unit for determining a temperature for correction that determines a temperature (Co. 4, Lines 26-28; of an opposing member (heat sink 18) opposed to the object member or a temperature of a member whose temperature changes in correlation to a change in the temperature of the opposing member; and

a calculating unit (Figs. 3-4) that corrects the detected temperature obtained by the temperature detecting unit using the temperature as the temperature for correction obtained by the unit for determining a temperature for correction.

Further regarding **Claims 2 and 12: Gillen** discloses the temperature detecting unit includes a thermopile (12) that outputs a voltage (Fig. 3) corresponding to a temperature difference between a hot junction and a cold junction, and

the unit for determining a temperature for correction determines a temperature (Col. 8, Lines 10-23) of the cold junction of the thermopile.

Further regarding **Claims 3 and 13: Gillen** discloses the calculating unit corrects the detected temperature using a first temperature for correction (a calibration first operating point, e.g. 55 degrees C) determined by the unit for determining a temperature for correction at a predetermined point in time (time of calibration) before a

point in time when the temperature detecting unit detects a temperature and a second temperature (the temperature of the heat sink) for correction determined by the unit for determining a temperature for correction at the point in time when the temperature detecting unit detects the temperature.

Further regarding **Claims 4 and 14: Gillen** discloses the first temperature for correction is determined when heating of the object member is started, since the calibration target is heated during calibration (Col. 6, Lines 9-20).

Gillen discloses a temperature correcting method as claimed by Applicant in **Claim 5**, comprising:

a first step of detecting a temperature (Col. 10, Lines 22-23) of a determination object member (target) based on an intensity of infrared rays from the object member;

a second step of determining a temperature (Col. 8, Lines 10-23) of an opposing member (the heat sink) opposed to the object member or a temperature of a member whose temperature changes in correlation to a change in the temperature of the opposing member; and

a third step of correcting (Col. 10, Lines 22-31) the detected temperature obtained in the first step using the temperature as a temperature for correction obtained in the second step.

Regarding Claim 7: **Gillen** discloses the fixing member is an open-ended tube (fusing drum 9) or an endless belt.

Regarding Claim 9: **Gillen** discloses a face of the fixing member opposed to the temperature detecting unit is a curved surface concave toward a side of the temperature detecting unit (See Fig. 5).

Regarding Claim 11: **Gillen** discloses the unit 1 for determining a temperature for correction determines a temperature of a member (of the temperature detecting unit, itself, device 10) in the fixing unit opposed to the fixing member.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over GILLEN as applied to Claims 1-7, 9 and 11-14 above, and further in view of OMATA et al. (U. S. Patent Application Pub. No. US 2002/0044801 A1, hereinafter OMATA)

GILLEN, to summarize, discloses all the limitations as claimed by Applicant in Claim 8, as described above in Paragraph 5 as applied to Claims 1-7, 9 and 11-14.

GILLEN as described above, does not explicitly disclose the fixing member has a thickness of 0.02 mm to 0.6 mm as claimed by Applicant.

OMATA discloses

"[0057] In this embodiment, the fixing device 150 of a fixing belt type is employed. Because a fixing pin part of the belt type fixing device is greater than that of a fixing device of a fixing roller type, the belt type fixing device is superior in fixing performance. Further, as the fixing belt 51 having a thickness of 200 μm or less is employed in this embodiment, the fixing belt 51 can be prepared for a fixing operation in a short heating-up time. Moreover, because the fixing belt 51 is formed from a heat-resisting resin film, the belt type fixing device can be low cost."

Moreover, it is well established that a thickness of 0.02 mm to 0.6 mm may be expressed equivalently as 20 μm to 600 μm by changing the units, as is well known in the art. As shown in the quotation above, OMATA teaches that a thickness of 200 μm or less is employed in order to benefit from the fixing belt having the property that it "may be prepared for a fixing operation in a short heating-up time".

OMATA thus discloses that it is advantageous to provide a fixing member with a thickness of 0.02 mm to 0.6 mm in order to benefit from a short heating-up time of the fixing member.

OMATA is evidence that ordinary workers in the field of electrographic image reproduction would recognize the benefit of using a fixing member with a thickness of 0.02 mm to 0.6 mm as taught by OMATA for the undisclosed fixing member thickness of GILLEN in order to benefit from a short heating-up time of the fixing member.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute a thickness of 0.02 mm to 0.6 mm as taught by OMATA for the undisclosed fixing member thickness of GILLEN in order to benefit from a short heating-up time of the fixing member as taught by OMATA.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over GILLEN as applied to Claims 1-7, 9 and 11-14 above, and further in view of TOMITA (U. S. Patent Application Pub. No. US 2001/0051057 A1)

GILLEN, to summarize, discloses all the limitations as claimed by Applicant in Claim 10, as described above in Paragraph 5 as applied to Claims 1-7, 9 and 11-14, further including the limitations wherein the fixing member has a face opposed to the temperature detecting unit, but GILLEN as described above, does not explicitly disclose the face opposed to the temperature detecting unit has a surface roughness Ra of not more than 0.2 μm as claimed by Applicant.

TOMITA discloses (where μm represents "micrometer"):

"[0079] In order to obtain color images having high gloss, the surface roughness of the fixing member is preferably as small as possible. As mentioned above, since the surface of toner images is embossed by the fixing member, it is the most preferable that the surface of the fixing member has a ten-point mean roughness of 0 μm . However, there is no fixing member having such a small surface roughness. Therefore, it is preferable to control the roughness of the surface of the fixing member so as to be as small as possible, i.e., not greater than 20 μm in ten-point mean roughness Rz. Rz of the fixing member is preferably not greater than 10 μm , more preferably not greater than 5 μm , even more preferably not greater than 1 μm , and most preferably not greater than 0.1 μm ."

TOMITA further discloses that it is advantageous to minimize surface roughness in order to benefit from color images having high gloss.

TOMITA is evidence that ordinary workers in the field of electrographic image reproduction would recognize the benefit of using a surface roughness Ra of not more than 0.2 μm as taught by TOMITA for the undisclosed surface roughness of GILLEN in order to obtain color images having high gloss.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute surface roughness of not more than 0.2 μm for the undisclosed surface roughness of GILLEN in order to obtain color images having high gloss as taught by TOMITA.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in a form PTO-892 and not mentioned above disclose related temperature measurement devices and methods and image fixing devices.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanley J. Pruchnic, Jr., whose telephone number is **(571) 272-2248**. The examiner can normally be reached on weekdays (Monday through Friday) from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached at **(571) 272-2245**.

The ***Official FAX*** number for Technology Center 2800 is **(703) 872-9306** for **all official communications**.

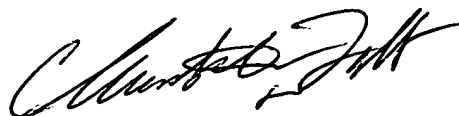
Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the official USPTO website at **<http://www.uspto.gov/>** or you may call the **USPTO Call Center** at **800-786-9199** or 703-308-4357. The Technology Center 2800 Customer Service FAX phone number is (703) 872-9317.

The cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov), from the Office of Public Records and from commercial sources.

Private PAIR provides external customers Internet-based access to patent application status and history information as well as the ability to view the scanned images of each customer's own application file folder(s).

For inquiries relating to Patent e-business products and service applications, you may call the ***Patent Electronic Business Center (EBC)*** at **703-305-3028** or toll free at **866-217-9197** between the hours of **6 a.m. and midnight Monday through Friday EST**, or by e-mail at: **ebc@uspto.gov**. Additional information is available on the Patent EBC Web site at: **<http://www.uspto.gov/ebc/index.html>**.

Art Unit: 2859



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